

APPENDIX 3 – MONITORING

Table 1 – Contract Needs

		Contract Needs (Thousands \$)								
WATERSHED/PROJECT	Program/ Funding Source (see footnotes below)	FY01/02			FY02/03			FY03/04		
		Funded (Reg. Bd.)	External Funding ^a	Unfunded	Funded (Reg. Bd.)	External Funding ^a	Unfunded	Funded (Reg. Bd.)	External Funding ^a	Unfunded
REGIONWIDE										
Ag Dominated Water Bodies (Bioassessment)	(A)									
Sacramento Basin			\$100				\$100			\$100
San Joaquin Basin/Delta	(B)		\$223			\$273				
Subtotal:		\$0	\$323	\$0	\$0	\$273	\$100	\$0	\$0	\$100
Effluent Dominated Water Bodies	(A)	\$75			\$75					
Citizen Monitoring										
Support citizen monitoring programs				\$150			\$150			\$150
Pathogens/Bacteria										
Baseline	(A), (C)	\$9	<i>b</i>	\$41			\$50			
Source Identification	(C), (D), (E)	\$11	<i>b</i>	\$89			\$100			
Subtotal:		\$95	\$0	\$280	\$75	\$0	\$300	\$0	\$0	\$150
Regionwide Study Total:		\$95	\$323	\$280	\$75	\$273	\$400	\$0	\$0	\$250
SACRAMENTO RIVER BASIN										
Main Stem Sacramento River										
SRWP multi-agency monitoring effort	(F)		\$300	\$200			\$500			\$500
Feather River Watershed Monitoring	(A)	\$78								\$100
Pit River Watershed Monitoring	(A)	\$98								
Lake Siskiyou Watershed Monitoring	(A)	\$16								
Watershed Monitoring - Rotational Monitoring of N. Sac. R. basins	(A)			\$400			\$400			\$400
Sacramento River Basin Total:		\$192	\$300	\$600	\$0	\$0	\$900	\$0	\$0	\$1,000

Table 1 – Contract Needs

WATERSHED/PROJECT	Program/ Funding Source (see footnotes below)	Contract Needs (Thousands \$)								
		FY01/02			FY02/03			FY03/04		
		Funded (Reg. Bd.)	External Funding ^a	Unfunded	Funded (Reg. Bd.)	External Funding ^a	Unfunded	Funded (Reg. Bd.)	External Funding ^a	Unfunded
SAN JOAQUIN RIVER BASIN										
Student Interns	(A), (G)	\$105		\$50			\$155			\$155
Field work; data management										
Selenium/Salt/Boron Program	(A), (G), (H), (I), (J), (K), (L)	\$138	<i>b</i>				\$140			\$140
Maintain multi-agency monitoring effort										
Real Time Monitoring Program	(A), (G), (H), (I), (J), (K), (L)	\$47	<i>b</i>				\$50			\$50
Coordinate saline/fresh water releases										
Main Stem San Joaquin River	(A), (C), (H), (L), (M)	\$74	<i>b</i>	\$20			\$100			\$100
Evaluate water quality downstream of major inflows										
Drainage Basin Inflows to the SJR	(A), (C), (H), (L), (M)	\$180	<i>b</i>	\$67			\$250			\$250
Evaluate water quality of representative discharges from eight major basins drainage to the SJR										
Storm Events		\$0		\$130			\$130			\$130
Document water quality impacts during two major storm events in the river and representative drainage basins inflows										
Baseline for Future Urban Creeks		\$24		\$15			\$40			\$40
Document condition in Mountain House Creek prior to land use conversion from rural habitat to a city of 55,000 people										
Fresno River										
Nutrient Monitoring				\$25			\$25			\$25
Rotational Basin Monitoring	(A), (C), (H), (L), (M), (N)	\$29	<i>b</i>	\$191			\$220			\$220
Intensive monitoring in major drainage basins once every 5- yrs										
Abandoned Mines				\$11			\$11			\$11
Evaluate possible Hg impacts from placer deposits and abandoned mines in Sierra Nevada and Coast Range										
Grazing/Timber Harvest				\$11			\$11			\$11

Table 1 – Contract Needs

		Contract Needs (Thousands \$)								
WATERSHED/PROJECT	Program/ Funding Source (see footnotes below)	FY01/02			FY02/03			FY03/04		
		Funded (Reg. Bd.)	External Funding ^a	Unfunded	Funded (Reg. Bd.)	External Funding ^a	Unfunded	Funded (Reg. Bd.)	External Funding ^a	Unfunded
Evaluate sediment loading and other habitat impacts										
Citizen Monitoring				\$150			\$150			\$150
Initiate citizen monitoring network similar to that formed in the Sacramento Watershed										
San Joaquin River Basin Total:		\$597	\$0	\$670	\$0	\$0	\$1,282	\$0	\$0	\$1,282
SACRAMENTO-SAN JOAQUIN DELTA										
Evaluation of Group A Pesticide Fish Tissue Levels										
Chemically analyze backlog of fish tissue samples				\$100						
Central Valley Fish Consumption study ^c				\$1,000			\$1,000			\$1,000
Central Valley Fish Body Burden Study ^f				\$500			\$1,000			\$1,000
Assess human and wildlife hazard of consuming fish										
Subtotal:		\$0	\$0	\$1,600	\$0	\$0	\$2,000	\$0	\$0	\$2,000
MTBE										
Monitor to determine sources, concentrations and risk to Bene. Use		\$20		\$50			\$50			\$50
Assemble inventory of BMPs for problem control							\$20			\$20
Evaluate feasibility of implementing promising BMPs										
Subtotal:		\$20	\$0	\$50	\$0	\$0	\$70	\$0	\$0	\$70
Back Slough Toxicity										
Determine magnitude, duration, extent, chemical cause and source				\$200			\$200			\$200
Assemble inventory of BMPs to correct problem							\$50			\$50

Table 1 – Contract Needs

WATERSHED/PROJECT	Program/ Funding Source (see footnotes below)	Contract Needs (Thousands \$)								
		FY01/02			FY02/03			FY03/04		
		Funded (Reg. Bd.)	External Funding ^a	Unfunded	Funded (Reg. Bd.)	External Funding ^a	Unfunded	Funded (Reg. Bd.)	External Funding ^a	Unfunded
Evaluate feasibility of implementing promising BMPs										
Subtotal:		\$0	\$0	\$200	\$0	\$0	\$250	\$0	\$0	\$250
Back Slough Low Dissolved Oxygen Levels										
Continue to assess chemical cause and magnitude of problem				\$200			\$200			\$200
Assemble inventory of BMPs to correct Problem							\$70			\$70
Evaluate feasibility of implementing promising BMPs										
Subtotal:		\$0	\$0	\$200	\$0	\$0	\$270	\$0	\$0	\$270
PCBs and Dioxins										
Central Valley Fish Consumption Study ^c				\$1,000			\$1,000			\$1,000
Central Valley Fish Body Burden Study ^c				\$500			\$1,000			\$1,000
Determine sources of dioxins										
Assess human and wildlife hazard of consuming fish										
Subtotal:		\$0	\$0	\$1,500	\$0	\$0	\$2,000	\$0	\$0	\$2,000
Sacramento-San Joaquin Delta Totals:		\$20	\$0	\$3,550	\$0	\$0	\$4,590	\$0	\$0	\$4,590
TULARE LAKE BASIN										
Kings River, Upper (Ten Mile Creek)										
Monitor algal bloom problems near Cedar Grove ^(A)			\$7	\$19			\$25			\$25
Monitor foaming problems in Ten Mile Creek ^(A)			\$6	\$18			\$25			\$25
Subtotal:		\$0	\$13	\$37	\$0	\$0	\$50	\$0	\$0	\$50
Kings River, Lower										

Table 1 – Contract Needs

WATERSHED/PROJECT	Program/ Funding Source (see footnotes below)	Contract Needs (Thousands \$)								
		FY01/02			FY02/03			FY03/04		
		Funded (Reg. Bd.)	External Funding ^a	Unfunded	Funded (Reg. Bd.)	External Funding ^a	Unfunded	Funded (Reg. Bd.)	External Funding ^a	Unfunded
Assess high salinity drainage discharges				\$10			\$10			\$10
Feasibility studies to reduce salinity				\$50			\$50			\$50
Subtotal:		\$0	\$0	\$60	\$0	\$0	\$60	\$0	\$0	\$60
Kaweah River - including Lake Kaweah										
Assess bacteria problems	(A)		\$15	\$35			\$50			\$50
Subtotal:		\$0	\$15	\$35	\$0	\$0	\$50	\$0	\$0	\$50
Tule River - including Lake Success										
Assess water quality	(A)		\$15	\$35			\$50			\$50
Subtotal:		\$0	\$15	\$35	\$0	\$0	\$50	\$0	\$0	\$50
Kern River - including Lake Isabella										
Assess water quality	(A)		\$15	\$35			\$50			\$50
Subtotal:		\$0	\$15	\$35	\$0	\$0	\$50	\$0	\$0	\$50
MTBE										
Monitor to determine sources, concentrations and risk to										
Beneficial Uses in Recreational Boating Reservoirs				\$15			\$15			\$15
Subtotal:		\$0	\$0	\$15	\$0	\$0	\$15	\$0	\$0	\$15
Panoche Creek										
Assess extent of mercury, selenium, and sedimentation				\$5			\$5			\$5
Evaluate feasibility of implementing BMPs										\$10
Subtotal:		\$0	\$0	\$5	\$0	\$0	\$5	\$0	\$0	\$15
San Carlos Creek										
Assess extent of mercury contamination				\$2			\$2			\$2
Evaluate feasibility of implementing BMPs										\$10
Subtotal:		\$0	\$0	\$2	\$0	\$0	\$2	\$0	\$0	\$12
Mendota Pool										
Assess water quality of groundwater pumped into it				\$12			\$12			\$12

Table 1 – Contract Needs

		Contract Needs (Thousands \$)								
WATERSHED/PROJECT	Program/ Funding Source (see footnotes below)	FY01/02			FY02/03			FY03/04		
		Funded (Reg. Bd.)	External Funding ^a	Unfunded	Funded (Reg. Bd.)	External Funding ^a	Unfunded	Funded (Reg. Bd.)	External Funding ^a	Unfunded
Assess salt loading from flows to the San Joaquin River				\$10			\$10			\$10
Assess loading of salt and trace elements in releases to the wildlife refuge				\$5			\$5			\$5
Subtotal:		\$0	\$0	\$27	\$0	\$0	\$27	\$0	\$0	\$27
Tulare Lake Basin Total:		\$0	\$58	\$251	\$0	\$0	\$309	\$0	\$0	\$329
Regionwide Study Total:		\$95.00	\$323.00	\$280.00	\$75.00	\$273.00	\$400.00	\$0.00	\$0.00	\$250.00
Sacramento River Basin Total:		\$192.00	\$300.00	\$600.00	\$0.00	\$0.00	\$900.00	\$0.00	\$0.00	\$1,000.00
San Joaquin River Basin Total:		\$597.00	\$0.00	\$670.00	\$0.00	\$0.00	\$1,282.00	\$0.00	\$0.00	\$1,282.00
Sacramento-San Joaquin Delta Totals:		\$20.00	\$0.00	\$3,550.00	\$0.00	\$0.00	\$4,590.00	\$0.00	\$0.00	\$4,590.00
Tulare Lake Basin Total:		\$0.00	\$58.00	\$251.00	\$0.00	\$0.00	\$309.00	\$0.00	\$0.00	\$329.00
CENTRAL VALLEY MONITORING PROGRAM TOTAL:		\$904	\$681	\$5,351	\$75	\$273	\$7,481	\$0	\$0	\$7,451

^a External funding is listed as known. Subtotals and totals in this column only represent a portion of external funds.

^b Expenditures by cooperating agencies unknown

^c Same study as is being identified in the group A pesticide work

(A) Surface Water Ambient Monitoring Program (SWAMP)

(B) OP Pesticide TMDL

(C) UC Davis

(D) Drinking Water

(E) Cooperative Extension

(F) Sacramento River Watershed Program (SRWP)

(G) GBP

(H) U.S. Fish and Wildlife Service (USFWS)

(I) GAF

(J) CA Department of Fish and Game (DFG)

(K) USBR

(L) U.S. Geological Survey (USGS)

(M) CALFED

(N) East Bay Municipal Utilities District (EBMUD)

Table 2 – Staff Needs

WATERSHED/PROJECT	Program/ Funding Source (see footnotes below)	Staff Needs (PY's)					
		FY01/02		FY02/03		FY03/04	
		Funded (Reg. Bd.)	Unfunded	Funded (Reg. Bd.)	Unfunded	Funded (Reg. Bd.)	Unfunded
REGIONWIDE							
Ag Dominated Water Bodies (Bioassessment)	(A)		1.0		1.0		1.0
Sacramento Basin							
San Joaquin Basin/Delta	(B)						
Subtotal:		0.0	1.0	0.0	1.0	0.0	1.0
Effluent Dominated Water Bodies	(A)	0.2			0.2		
Citizen Monitoring							
Support citizen monitoring programs			1.0		1.0		1.0
Pathogens/Bacteria		0.5	0.5	0.5	0.5		0.5
Baseline	(A), (C)						
Source Identification	(C), (D), (E)						
Subtotal:		0.7	1.5	0.5	1.7	0.0	1.5
Regionwide Study Total:		0.7	2.5	0.5	2.7	0.0	2.5
SACRAMENTO RIVER BASIN							
Main Stem Sacramento River		0.1	0.1		0.2		0.2
SRWP multi-agency monitoring effort	(F)						
Feather River Watershed Monitoring	(A)						
Pit River Watershed Monitoring	(A)						
Lake Siskiyou Watershed Monitoring	(A)						
Watershed Monitoring - Rotational Monitoring of N. Sac. R. basins	(A)		1.5		1.5		1.5
Sacramento River Basin Total:		0.1	1.6	0.0	1.7	0.0	1.7

Table 2 – Staff Needs

WATERSHED/PROJECT	Program/ Funding Source (see footnotes below)	Staff Needs (PY's)					
		FY01/02		FY02/03		FY03/04	
		Funded (Reg. Bd.)	Unfunded	Funded (Reg. Bd.)	Unfunded	Funded (Reg. Bd.)	Unfunded
SAN JOAQUIN RIVER BASIN							
Student Interns	(A), (G)						
Field work; data management							
Selenium/Salt/Boron Program	(A), (G), (H), (I), (J), (K), (L)	1.8	0.2	1.8	0.2	1.8	0.2
Maintain multi-agency monitoring effort							
Real Time Monitoring Program	(A), (G), (H), (I), (J), (K), (L)		1.0		1.0		1.0
Coordinate saline/fresh water releases							
Main Stem San Joaquin River	(A), (C), (H), (L), (M)		0.2		0.2		0.2
Evaluate water quality downstream of major inflows							
Drainage Basin Inflows to the SJR	(A), (C), (H), (L), (M)		0.3		0.3		0.3
Evaluate water quality of representative discharges from eight major basins drainage to the SJR							
Storm Events			0.2		0.2		0.2
Document water quality impacts during two major storm events in the river and representative drainage basins inflows							
Baseline for Future Urban Creeks			0.2		0.2		0.2
Document condition in Mountain House Creek prior to land use conversion from rural habitat to a city of 55,000 people							
Fresno River			0.1		0.1		0.1
Nutrient Monitoring							
Rotational Basin Monitoring	(A), (C), (H), (L), (M), (N)		1.0		1.0		1.0
Intensive monitoring in major drainage basins once every 5-yr							
Abandoned Mines			0.5		0.5		0.5
Evaluate possible Hg impacts from placer deposits and abandoned mines in Sierra Nevada and Coast Range							
Grazing/Timber Harvest			0.5		0.5		0.5

Table 2 – Staff Needs

WATERSHED/PROJECT	Program/ Funding Source (see footnotes below)	Staff Needs (PY's)					
		FY01/02		FY02/03		FY03/04	
		Funded (Reg. Bd.)	Unfunded	Funded (Reg. Bd.)	Unfunded	Funded (Reg. Bd.)	Unfunded
Evaluate sediment loading and other habitat impacts							
Citizen Monitoring			0.3		0.3		0.3
Initiate citizen monitoring network similar to that formed in the Sacramento Watershed							
San Joaquin River Basin Total:		1.8	4.5	1.8	4.5	1.8	4.5
SACRAMENTO-SAN JOAQUIN DELTA							
Evaluation of Group A Pesticide Fish Tissue Levels			0.3		0.3		0.3
Chemically analyze backlog of fish tissue samples							
Central Valley Fish Consumption study ^c							
Central Valley Fish Body Burden Study ^c							
Assess human and wildlife hazard of consuming fish							
Subtotal:		0.0	0.3	0.0	0.3	0.0	0.3
MTBE			0.5		0.5		0.5
Monitor to determine sources, concentrations and risk to Bene. Use							
Assemble inventory of BMPs for problem control							
Evaluate feasibility of implementing promising BMPs							
Subtotal:		0.0	0.5	0.0	0.5	0.0	0.5
Back Slough Toxicity			0.3		0.3		0.3
Determine magnitude, duration, extent, chemical cause and source							
Assemble inventory of BMPs to correct problem							

Table 2 – Staff Needs

WATERSHED/PROJECT	Program/ Funding Source (see footnotes below)	Staff Needs (PY's)					
		FY01/02		FY02/03		FY03/04	
		Funded (Reg. Bd.)	Unfunded	Funded (Reg. Bd.)	Unfunded	Funded (Reg. Bd.)	Unfunded
Evaluate feasibility of implementing promising BMPs							
Subtotal:		0.0	0.3	0.0	0.3	0.0	0.3
Back Slough Low Dissolved Oxygen Levels			0.3		0.3		0.3
Continue to assess chemical cause and magnitude of problem							
Assemble inventory of BMPs to correct Problem							
Evaluate feasibility of implementing promising BMPs							
Subtotal:		0.0	0.3	0.0	0.3	0.0	0.3
PCBs and Dioxins			0.5		0.5		0.5
Central Valley Fish Consumption Study ^c							
Central Valley Fish Body Burden Study ^c							
Determine sources of dioxins							
Assess human and wildlife hazard of consuming fish							
Subtotal:		0.0	0.5	0.0	0.5	0.0	0.5
Sacramento-San Joaquin Delta Totals:		0.0	1.9	0.0	1.9	0.0	1.9
TULARE LAKE BASIN							
Kings River, Upper (Ten Mile Creek)			0.2		0.2		0.2
Monitor algal bloom problems near Cedar Grove ^(A)							
Monitor foaming problems in Ten Mile Creek ^(A)							
Subtotal:		0.0	0.2	0.0	0.2	0.0	0.2
Kings River, Lower			0.2		0.2		0.2

Table 2 – Staff Needs

WATERSHED/PROJECT	Program/ Funding Source (see footnotes below)	Staff Needs (PY's)					
		FY01/02		FY02/03		FY03/04	
		Funded (Reg. Bd.)	Unfunded	Funded (Reg. Bd.)	Unfunded	Funded (Reg. Bd.)	Unfunded
Assess high salinity drainage discharges							
Feasibility studies to reduce salinity							
Subtotal:		0.0	0.2	0.0	0.2	0.0	0.2
Kaweah River - including Lake Kaweah			0.2		0.2		0.2
Assess bacteria problems	(A)						
Subtotal:		0.0	0.2	0.0	0.2	0.0	0.2
Tule River - including Lake Success			0.2		0.2		0.2
Assess water quality	(A)						
Subtotal:		0.0	0.2	0.0	0.2	0.0	0.2
Kern River - including Lake Isabella			0.3		0.3		0.3
Assess water quality	(A)						
Subtotal:		0.0	0.3	0.0	0.3	0.0	0.3
MTBE			0.2		0.2		0.2
Monitor to determine sources, concentrations and risk to							
Beneficial Uses in Recreational Boating Reservoirs							
Subtotal:		0.0	0.2	0.0	0.2	0.0	0.2
Panoche Creek			0.5		0.5		0.5
Assess extent of mercury, selenium, and sedimentation							
Evaluate feasibility of implementing BMPs							
Subtotal:		0.0	0.5	0.0	0.5	0.0	0.5
San Carlos Creek			0.2		0.2		0.2
Assess extent of mercury contamination							
Evaluate feasibility of implementing BMPs							
Subtotal:		0.0	0.2	0.0	0.2	0.0	0.2
Mendota Pool			0.3		0.3		0.3
Assess water quality of groundwater pumped into it							

Table 2 – Staff Needs

WATERSHED/PROJECT	Program/ Funding Source (see footnotes below)	Staff Needs (PY's)					
		FY01/02		FY02/03		FY03/04	
		Funded (Reg. Bd.)	Unfunded	Funded (Reg. Bd.)	Unfunded	Funded (Reg. Bd.)	Unfunded
Assess salt loading from flows to the San Joaquin River							
Assess loading of salt and trace elements in releases to the wildlife refuge							
Subtotal:		0.0	0.3	0.0	0.3	0.0	0.3
Tulare Lake Basin Total:		0.0	2.3	0.0	2.3	0.0	2.3
Regionwide Study Total:		0.7	2.5	0.5	2.7	0.0	2.5
Sacramento River Basin Total:		0.1	1.6	0.0	1.7	0.0	1.7
San Joaquin River Basin Total:		1.8	4.5	1.8	4.5	1.8	4.5
Sacramento-San Joaquin Delta Totals:		0.0	1.9	0.0	1.9	0.0	1.9
Tulare Lake Basin Total:		0.0	2.3	0.0	2.3	0.0	2.3
CENTRAL VALLEY MONITORING PROGRAM TOTAL:		2.6	12.8	2.3	13.1	1.8	12.9

^c Same study as is being identified in the group A pesticide work

(A) Surface Water Ambient Monitoring Program (SWAMP)

(B) OP Pesticide TMDL

(C) UC Davis

(D) Drinking Water

(E) Cooperative Extension

(F) Sacramento River Watershed Program (SRWP)

(G) GBP

(H) U.S. Fish and Wildlife Service (USFWS)

(I) GAF

(J) CA Department of Fish and Game (DFG)

(K) USBR

(L) U.S. Geological Survey (USGS)

(M) CALFED

(N) East Bay Municipal Utilities District (EBMUD)